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# Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



## VI SEMESTER B.TECH (INDUSTRIAL AND PRODUCTION ENGINEERING)

### END SEMESTER EXAMINATIONS, JUNE/JULY 2016

SUBJECT: INDUSTRIAL ROBOTICS [MME 316]

REVISED CREDIT SYSTEM (MAKE-UP)

Time: 3 Hours

MAX. MARKS: 50

#### Instructions to Candidates:

- ❖ Answer **ANY FIVE FULL** the questions.
- ❖ Missing data may be suitably assumed.

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| 1A. | What are the advantages and disadvantages of permanent magnet D.C motors                           | 3 |
| 1B. | What are the different types of robots? Explain  | 4 |
| 1C. | Write a short note on polar type robot configuration   | 3 |
| 2A. | Sketch and explain harmonic drives   | 4 |
| 2B. | Write a short note on robotic application in manufacturing   | 3 |
| 2C. | How are robots specified?  | 3 |
| 3A. | Sketch and explain construction and working of brush type DC motor.                                | 3 |
| 3B. | Write a short note on Robots and the Workforce   | 3 |
| 3C. | What are the economic and commercial responsibilities of management of manufacturing organizations | 4 |
| 4A. | Sketch and explain adhesive gripper and magnetic gripper   | 4 |
| 4B. | Sketch and explain stepper motor and generation of robots  | 4 |
| 4C. | What are the different types of robot configuration? Explain any one                               | 2 |
| 5A. | Sketch and explain different ways of transmission of power in robot                                | 4 |
| 5B. | Sketch and explain Hydraulic drives  | 4 |
| 5C. | Sketch the block diagram of servo motors   | 2 |
| 6A. | Sketch and explain Couple charged device and RCC   | 4 |
| 6B. | Explain with sketch proximity sensor and range sensor  | 4 |
| 6C. | Write a note on mechanical grippers  | 2 |